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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/994,475	CIANCAGLINI ET AL.	
	Examiner	Art Unit	
	David S. Kim	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2006.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 8-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### Drawings

1. Applicant's compliance with the objections to the drawings in the previous Office Action (mailed on 25 January 2006) is noted and appreciated. Applicant responded by filing a replacement drawing sheet on 27 April 2006 for Fig. 1 and by amending claims 25-26. Applicant's response overcomes the previous objections, which are presently withdrawn.

### Claim Objections

2. Applicant's compliance with the objections to claims 13 and 15-22 in the previous Office Action (mailed on 25 January 2006) is noted and appreciated. Applicant responded by amending claims 13 and 15-22. Applicant's response overcomes the previous objections, which are presently withdrawn.

3. **Claim 13** is objected to because of the following informalities:

Claim 13 presently depends on claim 8, but antecedent basis is lacking for "transmitting the amount of information". However, claim 13 may be intended to depend on claim 9, which introduces a limitation of transmitting an amount of information.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. **Claims 28-30** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In particular, notice the following limitation in claim 28 (which is included in dependent claims 29-30):

"periodically polling a plurality of nodes...to obtain **statistical information** on the plurality of nodes; and...

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the control packet specifying a value corresponding to an amount of information which the one of the plurality of nodes can transmit ***based on the statistical information***" (emphasis Examiner's).

Examiner notes that the supporting language for this limitation is probably from p. 11, l. 11-20 of the specification. Although the specification does disclose (1) periodically polling nodes to obtain statistical information and (2) a control packet specifying a value corresponding to an amount of information which the one of the plurality of nodes can transmit, the specification does not disclose that (2) is ***based on the statistical information*** of (1). Accordingly, the contested limitation above constitutes new matter.

Additionally, claim 30 includes a limitation with similar new matter issues. In particular, notice the following limitation in claim 30:

"the second control packet specifying a second value corresponding to a second amount of information which the second one of the plurality of nodes can transmit ***based on the statistical information***" (emphasis Examiner's).

This limitation is another instance of the contested limitation in claim 28 above. Accordingly, this limitation of claim 30 also constitutes new matter.

As a remedy, Examiner respectfully suggests simple removal of the phrase "based on the statistical information" from claims 28-30.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of

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each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

REVIEW CLAIMS FOR INTERPRETATION OF “VALUE” AS A COMMAND VALUE TO TRANSMIT.

8. **Claims 8-26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. (“Design and analysis of an asynchronous WDM local area network using a master/slave scheduler”, hereinafter “Modiano”).

(**claim 8**) Modiano discloses a medium access protocol (MAC) for a WDM LAN (abstract), a scheduler (abstract), a control channel (channel on wavelength  $c$  in Figs. 1-2), a data channel (any suitable channel in Fig. 1), and nodes coupled to the control channel and the data channel (hub and terminals in Fig. 1).

Modiano’s MAC also comprises a control message transmitting step (p. 901, col. 2, last paragraph, l. 3-4, the scheduler schedules transmission requests and informs OTs with transmission instructions). This control message specifies one of the nodes as a source node (when a node receives a transmission assignment, this reception indicates that it is a source node for a transmission, p. 901, col. 2, last paragraph). This control message also specifies another one of the nodes as a destination node (e.g., the assignment for queue 1 in Fig. 5 is a transmission assignment for node 1 to transmit to node 3).

After this transmitting step, the MAC comprises a step of waiting (e.g., in the case of unassigned node 3 in queue 3 in Fig. 5, node 3 waits for the next potential assignment; e.g., it is implied that the hub waits at least one slot before sending another transmission assignment to a particular node, p. 901-902, bridging paragraph, otherwise, the node would switch transmission assignments before completing its first assignment) a predetermined period of time related to the value specified in the first control message (e.g., if node 3 is unassigned for one slot, node 3 would wait the duration of that slot for the next potential assignment, p. 904, col. 1; e.g., the hub would wait at least one slot).

Modiano does not expressly disclose that this control message specifies a value that corresponds to an amount of information that the source node can transmit. However, notice that Modiano's nodes are unslotted and unsynchronized (p. 903, col. 1, last paragraph). Also, notice that all of the timing is controlled by the scheduler (p. 903, col. 1, last paragraph). Such timing considerations include when to start transmitting (p. 901, col. 2 – p. 902, col. 1, bridging paragraph). Similarly, at the time the invention was made, it would have been obvious to one of ordinary skill in the art to include when to end transmitting into the timing considerations. One of ordinary skill in the art would have been motivated to do this so that the transmissions of multiple nodes do not "collide". That is, the method of Modiano involves each node transmitting within the limitations of a slot. If a transmitting node does not know when to end transmitting, this node's transmissions may overlap, or "collide", in the next slot with the scheduled transmissions of another node. As Modiano describes slots in terms of amounts of bits (p. 903, col. 2, last paragraph), an obvious way to indicate when to end transmissions would be to provide a transmission limit of bits for the source node, which corresponds to the claim limitation of a value that corresponds to an amount of information that the source node can transmit.

Modiano does not expressly disclose that the control message is a packet. However, a packet is one of the most common transmission structures for network communications. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to embody the control message in a packet. One of ordinary skill in the art would have been motivated to do this since the nodes already receive communication through packets (p. 904, col. 2, last paragraph). That is, this implies that the nodes already possess infrastructure for receiving communication through packets.

**(claim 9)** Modiano discloses:

The protocol of Claim 8 further comprising:

receiving the control packet at each of the plurality of nodes in the network (the star in Fig. 1 distributes the control wavelength to all the nodes); and

in response to the source node receiving the control packet, transmitting (p. 901, col. 2, last paragraph) from the source node onto the data channel an amount of information not greater than the

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amount specified in the control packet (nodes are assigned to transmit an amount corresponding to a slot, e.g., p. 904, col. 2, last paragraph).

**(claim 10)** Modiano discloses:

The protocol of Claim 8 wherein in response to the destination node specified in the control packet receiving the control packet, the destination node monitors (Fig. 2, tunable receivers in destination nodes have to tune to the appropriate wavelength to properly receive from the data channel) the data channel for data following the control packet (control information to transmit during a particular transmission slot is received before the start of the transmission slot, p. 903, col. 1, last paragraph, so reception occurs following the control information).

**(claim 11)** Modiano discloses:

The protocol of Claim 10 wherein the destination node specified in the control packet retrieves the data from the data channel of the network (any suitable channel in Fig. 1).

**(claim 12)** Modiano discloses:

The protocol of Claim 8 wherein the amount of information specified in the control packet corresponds to a predetermined number of data packets (p. 904, col. 2, last paragraph).

**(claim 13)** Modiano discloses:

The protocol of Claim 8 wherein transmitting the amount of information includes transmitting one or more data packets immediately or after a delay known to both the scheduler and the node (e.g., p. 901-902, bridging paragraph).

**(claim 14)** Modiano discloses:

The protocol of Claim 8 wherein in response to the node to which the control packet is addressed receiving the control packet, immediately or after a delay known to both the scheduler and the node transmitting no more bytes than are permitted by the control packet (transmission is limited to a slot, p. 903, col. 1, last paragraph, p. 904, col. 2, last paragraph).

**(claim 15)** Modiano does not expressly disclose:

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The protocol of Claim 9 wherein receiving the control packet at each of the plurality of nodes in the network includes passively tapping the control channel at each of the plurality of nodes in the network to receive the control packet.

However, note the receiver coupling/tapping shown in the nodes in Fig. 2. Such coupling/tapping is conventionally passive.

**(claim 16)** Modiano does not expressly disclose:

The protocol of Claim 8 wherein the *value* in the control packet corresponds to *a number of bytes* the source node can transmit and the predetermined period of time corresponds to the amount of time required for the source node to transmit the *bytes*.

However, limiting transmission is part of the basic functions in a MAC. At the time the invention was made, it would have been obvious to correspond the value in the control packet to a number of bytes. One of ordinary skill in the art would have been motivated to do this to limit the nodes from transmitting more than one slot. That is, transmitting more than one slot could lead to conflicts in transmission assignments and reception assignments. Accordingly, the predetermined period of time (duration of a slot) of Modiano would correspond to the time required for the source node to transmit the *bytes*.

**(claim 17)** Modiano discloses:

The protocol of Claim 14 further comprising dispatching a second control packet after waiting for the predetermined period of time (e.g., in the case of unassigned node 3 in queue 3 in Fig. 5, note that another assignment message will follow for the next slot, p. 904, col. 1).

**(claim 18)** Modiano discloses:

The protocol of Claim 17 wherein at least one of a source node (e.g., queue 3 corresponds to node 3 in Fig. 5) and a destination node specified in the second control packet is different than the source node (e.g., queue 2 corresponds to node 2 in Fig. 5) and the destination node (e.g., assignment of destination node 1 for queue 2 in Fig. 2) specified in the first control packet.

**(claim 19)** Modiano discloses:



The protocol of Claim 8 wherein the control channel and the data channel are carried by the same fiber (any suitable fiber link in Fig. 1) and wherein the control packet on the control channel is “out-of-band” (separate control wavelength  $c$  in Figs. 1-2) from data on the data channel.

**(claim 20)** Modiano discloses:

The protocol of Claim 8 wherein transmitting the control packet includes transmitting the control packet from a headend (hub in Fig. 1) of the network.

**(claim 21)** Modiano discloses:

The protocol of Claim 20 wherein transmitting the control packet from a headend of the network includes the headend dispatching a scheduler allocation message (SAM) (e.g., messages from scheduler in Fig. 1).

**(claim 22)** Modiano discloses:

The protocol of Claim 21 wherein the SAM specifies a source node address (e.g., designation for transmitting node/queue in Fig. 5), a destination node address (e.g., designation for receiving node in Fig. 5), and at least one of: (a) a number of bytes (simply divide the slot size by the size of a byte) the source node may transmit to the destination node; and (b) an amount of time in which the source node may transmit (one slot at a time, e.g., p. 904, col. 2, last paragraph).

**(claim 23)** Claim 23 is an apparatus claim that corresponds largely to the method claim 8. Therefore, the recited limitations in method claim 8 read on the corresponding limitations in apparatus claim 23. Claim 23 also includes limitations absent from claim 8. Modiano discloses some of these limitations:

the optical path having a first end and a second (any suitable ends of the optical paths in Fig. 1);

the time period corresponding to a data transmission time for a node (one slot amount of time, p. 903, col. 1, last paragraph); and

waiting a period of time corresponding to the allotted data transmission time for node prior to releasing another control message (e.g., it is implied that the hub waits at least one slot amount of time before sending another transmission assignment to a particular node, p. 901-902, bridging paragraph, otherwise, the node would switch transmission assignments before completing its first assignment).

Modiano does not expressly disclose:

the control message **processor** and

the scheduler timing **processor**, in communication with said control message processor, said scheduler timing processor for causing said control message processor to perform said waiting step above.

However, processors are extremely well known in the art for implementing networks, like the network of Modiano. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to implement a control message processor and a scheduler timing processor. One of ordinary skill in the art would have been motivated to do this since computing functions, like the control message function and the scheduler timing function, are conventionally implemented by processors. Accordingly, since the scheduler timing function of Modiano (e.g., p. 903-904, section C) controls the timing of control communication with the nodes, the scheduler timing processor would be in communication with the control message processor and would control the timing of the control message processor, such as the waiting step above.

**(claim 24)** Modiano does not expressly disclose:

the scheduler authorization message (SAM) **processor**.

However, similar to the treatment of claim 23 above, implement such a processor for the SAM function of Modiano would be obvious.

**(claim 25)** Modiano discloses:

The network of Claim 23 wherein the control and data channels are separate from each other (separate control wavelength c in Figs. 1-2).

**(claim 26)** Modiano discloses:

The network of Claim 23 wherein the individual data channels and control channels are distinguished by wavelength (different wavelength for data and control channels in Fig. 1).

**(claim 27)** Modiano discloses:

The network of claim 25, wherein the control channel is out-of-band from the data channel (separate control wavelength c in Figs. 1-2).

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**Response to Arguments**

9. Applicant's arguments, filed on 27 April 2006, with respect to claim 8-27 have been considered but are not persuasive. First of all, notice the new ground of rejection in the treatment of claim 8 above. This new ground of rejection addresses the limitation of the "value which corresponds to an amount of information which the source node can transmit" with a line of argument that is different from the previous ground of rejection, mailed on 25 January 2006.

Additionally, Applicant's argument raises two salient points.

**Regarding the first point**, Applicant argues that the "slot" of Modiano does not correspond to an amount of information that the source node can transmit (filed on 27 April 2006, p. 12, 1<sup>st</sup> paragraph). However, Modiano provides exemplary language describing "slot size" in terms of "bits", which is an amount of information. Accordingly, Applicant's first point is not persuasive.

**Regarding the second point**, Applicant argues that Modiano does not teach that the amount of information a source node of can transmit is "fixed" (filed on 27 April 2006, p. 12, 1<sup>st</sup> paragraph). First of all, the importance of a "fixed" amount of information is irrelevant since the claims do not disclose that the "amount of information" must be "fixed". Accordingly, Applicant's second point is not persuasive.

**Summarily**, Applicant's arguments are not persuasive. Accordingly, Examiner respectfully maintains the standing rejections.

***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 571-272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth N. Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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DSK



BETH VANDERPUYE  
ADVISORY PATENT EXAMINER



Replacement Sheet

Approved by PSK  
65 July 2006

